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APPLICATION NO.	FILING DATE	FIRST NAME INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

THENTON, MATTHEW

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 06/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/058,327

Applicant(s)

YOSHIDA ET AL.

Examiner

Matthew A. Thexton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 15-18,30 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-14 and 19-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group 1, claims 1-14 and 19-29, in Paper No. 6 is acknowledged.

Claims 15-18, 30, and 31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 6.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

The abstract of the disclosure is objected to because the text relies upon species for the formulation components rather than the broader terminology embodied by the claimed disclosure. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities:. The attempt to incorporate subject matter into this application by reference to priority documents relied upon (page 1, line 9) is improper because such are reliance for claim to priority benefits is premised upon such content to be fully consonant with the present application and therefore cannot be any lesser. Deletion of the 'incorporation' statement is required.

Claim Rejections - 35 USC § 112, second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 and 19-29 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Some specific examples are:

1. in claim 1 and others, the phrase "...as being dispersed therein or immobilized on the surface thereof..." is not understood, apparently the meaning intended is "...once dispersed therein or immobilized on the surface thereof...";
2. in claim 1, the term "natural numbers" applied to variables "x" and "y" is not consistent with the understood disclosure because natural numbers are zero and positive integers, which means that "x" and "y" may be zero, which eliminates the first component entirely, which would subject the claim to anticipation over the references cited by applicant showing metal hydroxides;
3. in claims 3 and 13 the phrase "have a non-metallic nature" is not clear because 'metallic nature' suggests metallic characteristics, such as shiny appearance, malleability, etc., hence non-metallic suggests the opposite; however compounds comprising the metallic salts of nitric acid, etc. would seem to "have a non-metallic nature" in this analysis; on the other hand, if the intent is to exclude the 'metallic salts' so as to provide for the organic and ammonium nitrates, etc. then re-phrasing is necessary for clarity;
4. in claim 14 the phrase "...a crystal water" is taken to mean a water molecule of hydration; while not ambiguous, the chosen phrase is not usual construction and thus confusing;

Claim Rejections - 35 USC § 112, first paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 19, 20 and 24-26 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for compounds having the group $NxOy$, nitric acid compounds, nitrous acid compounds, and hyponitrous acid compounds, does not reasonably provide enablement for all oxidizing "accelerator[s]" more particularly recited as "nitric acid," "permanganate," "chromic acid," "chromic acid compound," "peroxide," "salt of peroxyacid," "salt of sulfuric acid," "oxygen-base substance," or "oxide."

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The generic claims 19, 24 and 25, as well as the Markush limited claims 20 and 26, encompass an enormous number of compounds. The specification supports these claims beginning at page 9, line 26 and concluding at page 12, line 3. At page 11, lines 16-19 a broader Markush list is set forth than claimed.

Immediately following this section, at page 12, line 4+, the specification states that "...the nitrogen compound is preferably a nitric acid compound..." and then from there on the specification is directed to compounds having a group " $NxOy$ " or compounds selected from the group consisting of "nitric acid compound, nitrous acid compound, and hyponitrous acid compound." Claims 19, 20 and 24-26 are merely an invitation to experiment, and involve compounds which are entirely different from and

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incapable of satisfying the disclosure of the nitrogen acid compounds which are described as evolving nitrogen/oxygen gases which combine with water to form nitric acid for thermal oxidative decomposition to achieve the desired flame-retardant effect. Since these claims encompass compounds which cannot operate as set forth for the nitrogen acid compounds, the specification fails to provide guidance for the practitioner who is operating in an area of low degree of predictability, as acknowledged in the literature, which describes the problems of flame retardants not working in all polymers and of interactions between flame retardants being unpredictable.

Since the specification is devoted to the nitrogen acid compounds, except for the passages as noted beginning at page 9, line 26 and concluding at page 12, line 3, the examples do not provide any evidence of success or guidance on how to make or use the "accelerator" as broadly claimed in claims 19, 20, and 24-26. There does not seem to be any way that applicant can have enabled nitric acid per se or hydrogen peroxide per se since these are liquids which seems incompatible with the disclosure and the nitric acid would clearly defeat the usefulness of the polymer based on the disclosure and the known chemistry thereof.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 19, 20, and 24-26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by official notice of well known public domain compounds.

These claims are directed to additives intended to be combined with polymer. These claims require only one component. Thus, in the case of claims 20 and 26, the Markush group lists known compounds which applicant did not invent and which are in the public domain. These claims recite properties/performances which must be inherent to the compounds. It is well established that newly discovered properties do not lend patentability to old compounds (or compositions), but may form a basis for patentability of methods of use.

Claims 19, 20 and 24-26 rejected under 35 U.S.C. 102(b) as being clearly anticipated by Blount (US 5854309).

See column 3, lines 40-53. Among other embodiments disclosed is sulfuric acid salts formulated to cause carbonization. Claims are open construction therefore the reference compositions anticipate the claimed compounds.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 7-13, 19-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (JP 53-12940), USPTO translation provided.

Matsumoto et al. discloses flame retardation of polymer by combining therewith magnesium hydroxide powder, which may be coated with higher fatty acid or its salt (page 5, translation) and alkali metal salt of nitrite, nitrate, sulfite, sulfate, or halide (page 6, translation). With respect to claims 3 and 13, the alkali metal salts disclosed by Matsumoto et al. do not have 'metallic nature' since they are not shiny, malleable, etc., characteristics of metallic material, and hence they do have "non-metallic nature" as required by the claim language. The nitrate and nitrite salts disclosed by the reference meet the claim limitations of "nitric acid compound...[or] nitrous acid compound" "group expressed as $NxOy$ " "nitrogen compound" and "metal nitrate". It would have been obvious to one of ordinary skill in the art at the time of the invention to form a premix of the two flame retardants as suggested by the reference at page 7, lines 4-8 (translation), and as is common practice, so that particular applications and particular polymer can be accommodated.

Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (JP 53-12940), USPTO translation provided, as applied to claims 1 and 2 above, and further in view of Kurisu et al. (US 5766568).

Kurisu et al. discloses flame retardant comprising metal hydroxide. At column 6, lines 3-30 is disclosed the embodiment of coating said powder metal hydroxide with surface treating agents to achieve one or more objectives; including fatty acids and salts thereof and coupling agents comprising silanes, titanates, aluminates. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the

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particle surface treating to other particles to be formulated with the polymer, in this case the nitrates or nitrites of Matsumoto et al. in order to achieve the benefits thereof. The silanes, titanates disclosed have the inherent property recited in claim 6.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (JP 53-12940), USPTO translation provided, in view of Musselman et al. (US 5480587).

Matsumoto et al. discloses flame retardation of polymer by combining therewith magnesium hydroxide powder (page 5, translation) and alkali metal salt of nitrite, nitrate, sulfite, sulfate, or halide (page 6, translation). The magnesium hydroxide is not water hydrated.

Musselman et al. discloses that inorganics possessing water of hydration, such as alumina trihydrate or hydrotalcite, may be used as fire retardants because the water release upon heating served to lower temperature and inhibit access to the polymer by oxygen, column 1, line 38 to column 2, line 16.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Matsumoto et al. to employ hydrated metal hydroxide in order to obtain the benefit disclosed in Musselman et al., thus arriving at the formulation encompassed by claim 14.

Citation of Pertinent Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Watanabe et al. (US 6316118) serves to further show the state of the art.

Miyata, Shigeo (US 5571526) is similar to Kurisu et al. and appears to be cumulative therewith.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew A. Thexton whose telephone number is 703-305-5085. The examiner can normally be reached on Monday-Friday, 8:30 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasudevan S Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Matthew A. Thexton
Primary Examiner
Art Unit 1714

June 11, 2003